

Notice of Allowability

Application No.

10/670,036

Examiner

Terry L. Englund

Applicant(s)

FLASZA, MICHAEL D.

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Appeal Brief (Feb 26, 2007) and Interview (Apr 25, 2007).
2. ☒ The allowed claim(s) is/are 1-20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

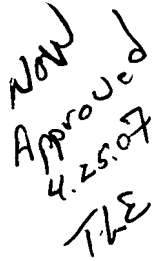
Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>20070425</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |



RESPONSE TO APPEAL BRIEF

The Appeal Brief filed on Feb 26, 2007 has been reviewed and considered with the following results:

After reconsidering the claim language, arguments/comments, performing an update search, and consulting several other examiner's, it was determined that there is no motivation to ensure the power supply circuit comprises either cascaded charge pump circuits or a plurality of cascaded switched capacitor voltage dividers. For example, if existing loop powered process type instruments operate satisfactorily with a single, simple power supply circuit, there is no strong motivation to replace it with a more complex power supply circuit that would consume more power, require more elements, and use up more space. Therefore, the claimed limitations are deemed allowable with the changes described later under the Examiner's Amendment. These changes take into account some of the objections described in the previous Office Action, wherein all the other previous objections, and the previous rejections of claims 1-20 under 35 U.S.C. 112, first paragraph, have now been withdrawn. The relationships between the various components, and the operation, of the loop powered process instrument are now better understood by this examiner.

After the changes described below are entered to address various concerns, there is no known objection or rejection within the present application.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to the applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with the applicant's representative F. William McLaughlin (Reg. No. 32,273) on Apr 25, 2007.

The application has been amended as follows:

Page 2, line 16: changed "place" to --placed--;

Page 4, line 11: changed "connecting" to --connected to--; and added --and-- after
"circuits";

Page 7, line 11: changed "senses" to --sense--;

Page 10, line 14: changed "instrument electronic" to --control circuit--;

line 15: changed "instrument electronic" to --control circuit--;

Claim 1, line 4: added a comma after "circuit"; added a comma after "loop";

line 6: added a comma after both occurrences of "circuit";

line 8: replaced "comprising" with --wherein the power supply circuit
comprises--;

Claim 5, line 2: changed "connecting" to --connected to--; added --and-- after "circuits";

Claim 8, line 4: added a comma after "circuit"; added a comma after "loop";

line 6: added a comma after "supply circuit"; added a comma after "control
circuit";

line 8: replaced "comprising" with --wherein the power supply circuit
comprises--;

Claim 16, line 5: added a comma after "supply circuit"; added a comma after "control

circuit”;

line 7: replaced “comprising” with --wherein the power supply circuit

comprises--; and

Claim 17, line 2: changed “circuits” to --circuits, as the plurality of cascaded switched voltage dividers--.

The changes to pages 2 and 7 correct minor oversights (e.g. a typo), and the two changes on page 10 ensure consistent labeling is used throughout the disclosure (e.g. see “control circuit 26” on line 9 of the same page). Page 4 was amended to more accurately cite the relationship of the diode with the cascaded charge pump circuits and control circuit. Using the applicant’s own Fig. 1 as an example, while output V3 of cascaded charge pump circuit U1-U2 is shown directly connected to control circuit 26, output V3 is connected to ground through regulator diode D1. Therefore, the phrasing was amended because the original wording implied the output of the cascaded charge pump circuits was actually connected to the control circuit through the regulator diode. Claim 1 was amended to more clearly indicate the output circuit controls the current; the power supply circuit receives the power; and the power supply circuit comprises the cascaded charge pump circuits. The wording of claim 5 was changed for the same reasoning applied above with respect to page 4. Claim 8 was amended to more clearly indicate the output circuit controls the current; the power supply circuit receives the power; and the power supply circuit comprises the current source providing the current to a plurality of cascaded switched capacitor voltage dividers. Claim 16 was amended to more clearly indicate the power supply circuit receives the power, and also comprises the plurality of cascaded switched capacitor voltage dividers. Claim 17 was changed to relate “cascaded divide-by-two charge pump circuits” back to the “plurality of

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cascaded switched capacitor voltage dividers” cited in claim 16. Otherwise, it would appear the claimed improvement would include the voltage dividers and pump circuits as two distinct sets of elements. However, the voltage dividers are actually the pump circuits.

REASONS FOR ALLOWANCE

The following is an examiner’s statement of reasons for allowance:

None of the prior art references reviewed and considered shows or discloses a loop powered process instrument comprising the control circuit, output circuit, and power supply circuit as recited within independent claims 1, 8, and 16, wherein this power supply circuit is connected to the output circuit and control circuit; receives power from the two-wire process loop; and supplies power to the control circuit. More specifically, none of the references clearly shows or discloses the power supply circuit comprising either cascaded charge pump circuits as recited within claim 1 (upon which claims 2-7 depend), or a plurality of cascaded switched capacitor voltage dividers as recited within claims 8 (upon which claims 9-15 depend) and 16 (upon which claims 17-20 depend). Since there is no strong motivation to modify or combine any prior art reference to ensure the power supply circuit meets either of those claimed limitations, the claims are deemed patentably distinct over the prior art of record.

Claims 1-20 are allowable.

PRIOR ART

The prior art references on the accompanying PTO-892 are cited for interest and documentation purposes only since they do have some characteristics in common with the claimed invention. Fig. 7 of Jongsma et al. shows cascaded regulators 702, 704, and 706. However, these are not identified as either charge pumps or switched capacitor voltage dividers,

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and it is not clear what would be considered the control circuit (for measuring a process variable and receiving power from the two-wire process loop and power supply circuit) and output circuit. Cook et al. shows/discloses a variable power control for process control instruments, but does not clearly show or disclose the use of even a single charge pump or switched capacitor.

Figs. 2 and 3 of Schlesinger et al. both show one type of a two-wire loop, but only shows a single regulator without showing or disclosing a single charge pump or switched capacitor. Kielb et al. shows a two-wire type circuit in Fig. 4 comprising a plurality of regulators 68,72 and a single charge pump 132 with a single switched capacitor in it. Since the regulators and charge pump are shown/disclosed as different elements, there is no strong motivation to modify or combine any reference(s) to ensure the overall circuit comprises either the cascaded charge pumps, or the plurality of switched capacitor voltage dividers.

Any comments considered necessary by the applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication from the examiner should be directed to Terry L. Englund whose telephone number is (571) 272-1743. The examiner can normally be reached Monday-Friday from 7 AM to 3 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert J. Pascal, can be reached on (571) 272-1769.

The new central official fax number is (571) 273-8300.

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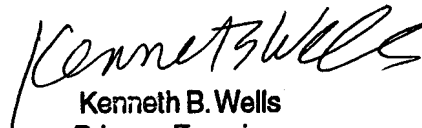
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1562.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TLE

Terry L. Englund

25 April 2007


Kenneth B. Wells
Primary Examiner